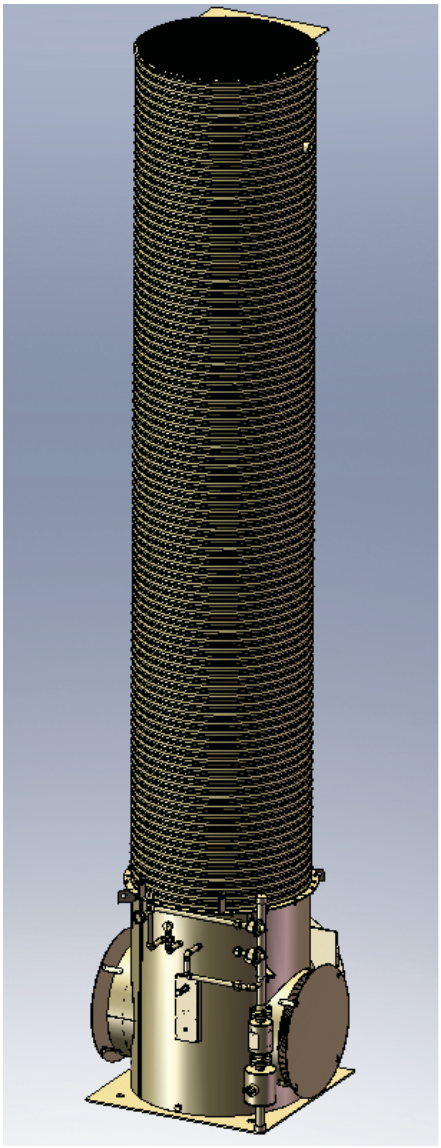
THERMAL OXIDIZER

The **TEC4-CS & TEC3-CS** have been designed to burn low volumes of waste gas in either continuous or intermittent flow conditions with gas compositions that contain 1% or less H_2S.



- They are best suited to handle intermittent flow rates from various flow streams and contain the flame with in their chambers.
- Each design utilizes up to three burner manifolds along with a zone control system that adjusts to varying flow rates to maintain proper levels of destruction at all times.
- Stack heights are designed to completely conceal the combustion flame.
- The units are designed for smokeless operation.
- High destruction efficiency (99.95%+).
- Easily adaptable design to meet specific site requirements.

Applications

- Solution Gas Disposal
- Casing Gas Disposal
- Tank Vapor Disposal,
- Sour Off Gas Disposal
- Fugitive Emissions
- Odor Control

Design Features

- Specifically designed for the combustion of rich, low pressure gas and containing the flame within the combustion chamber.
- Low pressure, atmospheric burners capable of providing a quiet, stable flame front and predictable maximum heat release.
- Utilizes a highly reliable pilot and manual ignition system used in the industry for the past 15 years in hundreds of applications and environments.
- Includes combustion air inlet arrestor's mounted on a vertical plane to reduce fouling of the elements while also allowing the unit to be located in “hazardous” classified areas near process equipment.
- The maximum contact surface temperature anywhere on the unit is less than 150 degrees F.
- The maximum surface temperature anywhere on the unit is well below the auto ignition temperature of 835 degrees F. and can never be a unsafe ignition source.
- The combustion chamber height has been designed to conceal the expected maximum flame length as well as provide for adequate residence time to completely oxidize all combustibles prior to exiting the unit.
- The refractory lining allows the unit to withstand thermal shock therefore no preheat period is required in operation. This also permits for the application of custom non high temperature paint colors.
- The unit includes a Tornado Technologies Inline Deflagration Arrestor so as to protect equipment upstream of the unit from flashback occurrences.
- A slug catcher with a drain fitting is installed on the waste gas inlet to collect condensate carry over.
- Thermally insulated structure to protect equipment and provide operator safety during operation.
- Low Service Factor Costs
- Low IR Exposure
- Light Weight-Free Standing design allows for ease of handling.
- SS bird screen on stack exit.
- Free Standing, 90 MPH engineered wind load design.

TEC4-CS Base Section

Specifications

Parameters	TEC4-CS	TEC3-CS
Maximum Unit Capacity[1]:	86,400 scf/day (2 decs /Day)	45,696 scf/day (1.3 decs /Day)
Maximum Heat Release[1]:	9.0 MMBTU/hr (2.635 kW/hr)	4.38 MMBTU/hr (1.282 kW/hr)
Turn Down Ratio:	30:1	30:1
Maximum Burner Capacity:	3600 SCFH (102 SCMH)	1904 SCFH (53.9 SCMH)
Minimum Burner Capacity:	120 SCFH (3.4 SCMH)	63.5 SCFH (1.79 SCMH)
Burner Manifold Press. Range:	0.5-10 Oz (0.216-4.31 kPa)	0.5-10 Oz (0.216-4.31 kPa)
Pilot Consumption:	25 SCFH (0.708 SCMH)	25 SCFH (0.708 SCMH)
Pilot Ignition[2]:	Piezoelectric Igniter	Piezoelectric Igniter
Pilot Burner:	Standing Pilot	Standing Pilot
Diameter:	4 Feet (1.22 Meters)	3 Feet (0.914 Meters)
Combustion Chamber Height:	20 Feet (6.10 Meters)	20 Feet (6.10 Meters)
Overall Height:	25 Feet (7.6 Meters)	25 Feet (7.6 Meters)
Overall Weight:	3178 lbs (1441 kg)	2524 lbs (1144 kg)
Overturning Wind Moment at Base[3]:	29,703 ft-lbs (176 kN-m)	23,103 ft-lbs (137 kN-m)

1 Based upon 2300 BTU/scfh gas, actual unit capacity will vary depending on waste gas heating value
2 Optional solar power or 12/24 VDC ignition packages are available
3 Based on 90 mph (145 kph) wind load

Concrete Pad Mounting Option

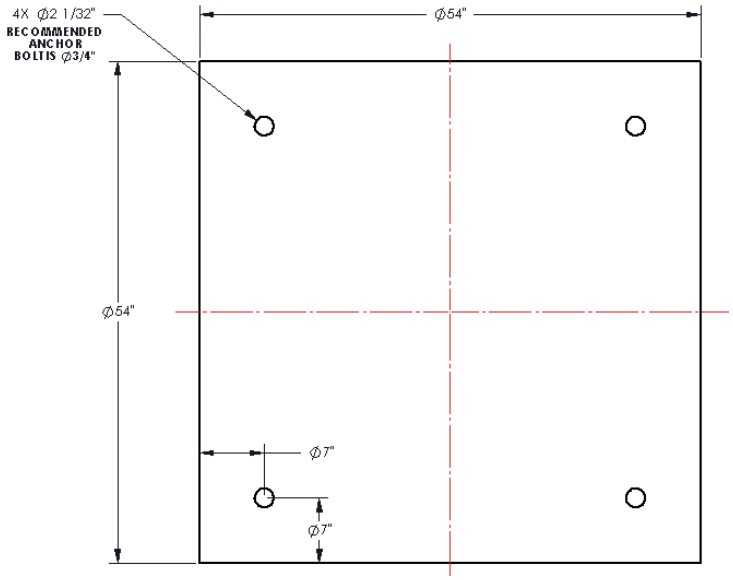
Hinge door inlet air arrestor inspection access.

TEC4-CS Concrete Pad

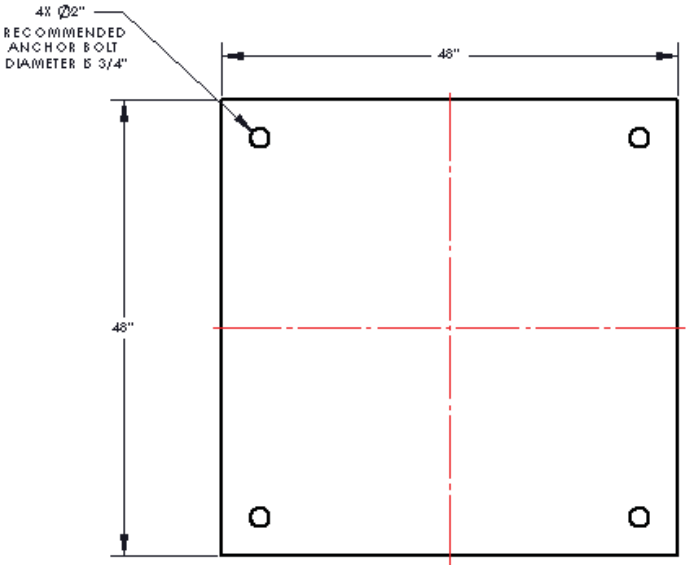
Concrete Pad Dimension Size:	6’ x 6’ x 4”
Rebar Center-Center Distance:	12 inch
Concrete Pad Weight:	1741 lbs
Base Plate Width:	54 inch
Base Plate Length:	54 inch

Base plate Geometry

TEC4-CS



TEC3-CS



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CUSTOMER DATA SHEET

Client: xxx
Site: DJ BASIN GAS
Filename: TEC 4CS ENCAL-DJ designplus NOx.xls

Date: Jan-16-2008
Model: TEC 4CS

TEC Design Flow Specifications

	Imperial	Metric
Maximum Design Flowrate	3625 *scf/hr.*	103 *scm/hr*
Minimum Design Flowrate	385 *scf/hr.*	11 *scm/hr*
Waste Gas Turn Down Ratio	10.0 : 1	10.0 : 1
Ambient Pressure	310.2 *Inches H2O*	788 *cm H2O*
Ambient Air Temperature	70 *deg. F*	21 *deg. C*

TEC Design Data

	Imperial	Metric
Incinerator OD	3.935 *feet*	1.199 *meters*
Combustion Chamber Height	20.03 *feet*	6.105 *meters*
Total Height	25.03 *feet*	7.629 *meters*
Foot Print Side Length	54 *inches*	1.372 *meters*

Supplied Waste Gas Data

	Imperial	Metric
Maximum Waste Gas Inlet Flowrate	3600 *scf/hr.*	102 *scm/hr*
Minimum Waste Gas Inlet Flowrate	360 *scf/hr.*	10 *scm/hr*
Pseudo Waste GasTemp. (Max Flow)	64.6 *deg. F*	18.08 *deg. C*
Pseudo Waste GasTemp. (Min Flow)	60.8 *deg. F*	15.99 *deg. C*
Spec. Grav. Relative to Air (Max Flow)	1.5528	1.5528

Combustion Data (Based on Maximum Input)

	Imperial	Metric
Stack Top Temperature	1600 *deg. F*	871 *deg. C*
Minimum Residence Time	0.53 *sec*	0.53 *sec*
Chamber Exit Velocity	34.33 *ft/s*	10.47 *m/s*
Chamber ID	3.58 *feet*	1.09 *meters*
Calorific Value of Waste & Pilot Gas	2308 *BTU/acf*	85.95 *MJ/acm*
Products of Combustion POC	1244768 *acf/hr.*	35248 *acm/hr*
Stoichiometric Air (Max. Flow)	119594 *acf/hr.*	3387 *acm/hr*
Excess Air (Max. Flow)	184714 *acf/hr.*	5231 *acm/hr*
Stack O2 Reading (Volume)	13.37%	13.37%
CO2 Emission (Mass)	1271 *lbs/hr.*	160.1 *gm/s.*
NOx Emission (Mass)	1.005 *lbs/hr.*	0.1 *gm/s.*
NOx Concentration	35 ppm	
SO2 Emission (Volume)	0.0000 *scf/s*	0.0000 *scm/s*
SO2 Emission (Mass)	0.00 *lbs/hr.*	0.00 *gm/s.*
Chamber Heat Flux	830869 *BTU/(sq.ft-hr)*	9.43 *GJ/(sq.m-hr)*

TEC 4CS FLOW CURVE